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2. The film cooling hole of claim 1, and further comprising:
The diffusion section forms a bell mouth shaped cross section.
3. The film cooling hole of claim 1, and further comprising:
The two side walls and the downstream wall of the diffusion section are curved outward from the center of the diffusion section.
4. The film cooling hole of claim 1, and further comprising:
The downstream wall has an expansion of from 15 to 25 degrees.
5. The film cooling hole of claim 1, and further comprising:
The two side walls have an expansion of from 15 to 25 degrees.
6. The film cooling hole of claim 5, and further comprising:
The long ribs and the short rib form an expansion of from 15 to 25 degrees.
7. The film cooling hole of claim 6, and further comprising:
The film cooling hole is a streamwise oriented film cooling hole.
8. The film cooling hole of claim 1, and further comprising:
The film cooling hole is a compound angled oriented film cooling hole.
9. The film cooling hole of claim 1, and further comprising:
The radial outer side wall has an expansion of from 0 to 5 degrees.
10. The film cooling hole of claim 9, and further comprising:
The radial inward side wall is curved outward to form passage outlets with a 20 to 30 degree angle from side wall to side wall.

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11. An air cooled airfoil for a gas turbine engine, comprising:
The airfoil includes a plurality of film cooling holes of claim 1 to discharge a layer of film cooling air onto the outer airfoil surface.
12. The air cooled airfoil of claim 11, and further comprising:
The diffusion section of the film cooling hole forms a bell mouth shaped cross section.
13. The air cooled airfoil of claim 11, and further comprising:
The two side walls and the downstream wall of the diffusion section are curved outward from the center of the diffusion section.
14. The air cooled airfoil of claim 11, and further comprising:
The downstream wall has an expansion of from 15 to 25 degrees.
15. The air cooled airfoil of claim 11, and further comprising:
The two side walls have an expansion of from 15 to 25 degrees.
16. The air cooled airfoil of claim 15, and further comprising:
The long ribs and the short rib form an expansion of from 15 to 25 degrees.

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